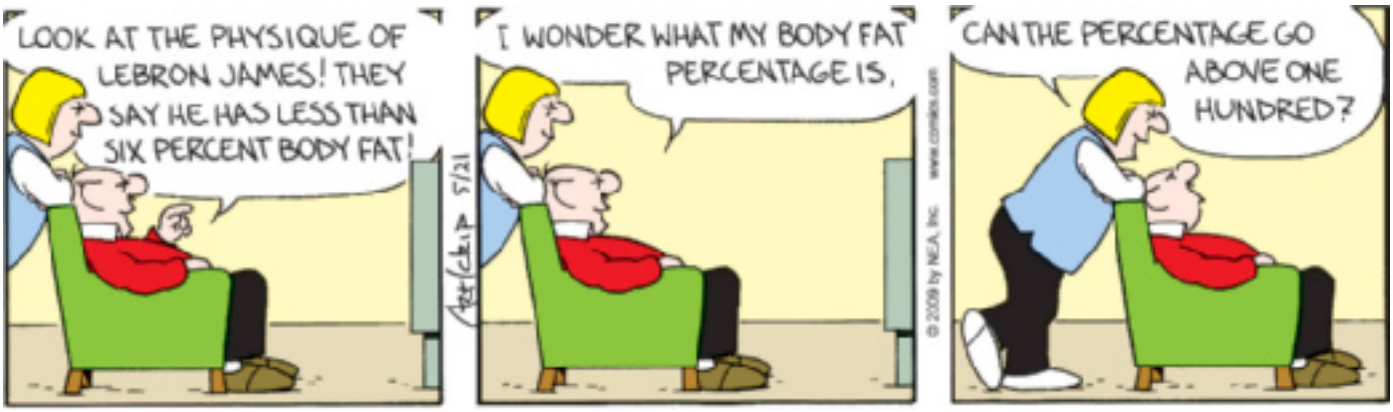
cartoon corner

Name _____

BORN LOSER by Art and Chip Sansom



LEBRON'S BODY MASS INDEX IS WHAT?

1. How would you respond to the Born Loser's wife? Why?

According to the Centers for Disease Control and Prevention (CDC), body mass index (BMI) is computed using pounds and inches as follows:

Divide a person's weight in pounds by his or her height in inches squared, then multiply by a conversion factor of 703.

2. According to the official NBA Web site, NBA.com, LeBron James is 6 ft., 8 in. tall and weighs 250 lbs. Compute his BMI.

3. The following table shows the CDC's interpretation of BMI for adults. According to this index, what is James's weight status? Explain why his weight status does or does not seem reasonable.

BMI	Weight Status
Below 18.5	Underweight
18.5–24.9	Normal
25–29.9	Overweight
30.0 and above	Obese

4. Determine the BMI for the following athletes:

a. Aaron Rodgers, quarterback, Green Bay Packers, 6 ft., 2 in., 220 lbs.
b. D'Brickashaw Ferguson, offensive tackle, New York Jets, 6 ft., 6 in., 310 lbs.
c. Jason Hanson, place kicker, Detroit Lions, 6 ft., 0 in., 190 lbs.
d. Martin Brodeur, goalie, New Jersey Devils, 6 ft., 2 in., 215 lbs.
e. Alex Rodriguez, third baseman, New York Yankees, 6 ft., 3 in., 230 lbs.
f. Prince Fielder, first baseman, Milwaukee Brewers, 5 ft., 11 in., 270 lbs.
g. Laila Ali, professional boxer, 5 ft., 10 in., 160 lbs.
h. Dara Torres, Olympic swimmer, 5 ft., 11 in., 150 lbs.
i. Chamique Holdsclaw, forward, Atlanta Dream, 6 ft., 2 in., 172 lbs.

CHALLENGE

5. Research various athletes, and record their height, weight, and age. Predict their BMI. Use the Web site to calculate their BMI, and compare it with your prediction. Do your predictions improve with practice?

from the April 2011 issue of mathematics teaching in the MIDDLE SCHOOL

Edited by **Stephen P. Smith**, and **Peggy House**, Northern Michigan University, Marquette. Classroom teachers interested in field-testing or submitting a cartoon should contact **Stephen P. Smith**, stepsmit@nmu.edu. The cartoons must include the date and the newspaper syndicate that holds the copyright.

SOLUTIONS

1. The percentage cannot go above 100. No one can be 100% fat.

2. $\frac{(250)(703)}{(80)^2} = 27.46$

3. According to the standards, James is overweight, which is unreasonable. His muscle mass is skewing the results.

4. **(a)** Rodgers: 28.24
(b) Ferguson: 35.82
(c) Hanson: 25.77
(d) Brodeur: 27.60
(e) Rodriguez: 28.74
(f) Fielder: 37.65
(g) Ali: 22.96
(h) Torres: 20.92
(i) Holdsclaw: 22.08

5. Answers will vary. Students should improve their predictions with practice.

FIELD-TEST COMMENTS

Because of the mathematical strategies involved, I had my fifth-grade mathematics students work together in pairs to complete this assignment. They were very interested in the topic, and the assignment spurred many lively discussions among them.

They verbally described their problem-solving strategies with their partners as they worked, trying to decide which would be most efficient and which would produce correct responses.

Two of my male students already knew that muscle tissue weighs more than fat tissue; after they voiced that fact, students were able to have valid discussions about the professional athletes who were listed in the activity.

The athletes listed in question 4 and the challenge in question 5 were not enough to satisfy my students. Many of them wanted to survey other people at our school, including some male fifth-grade teachers, to calculate their BMI numbers, as well. Almost all wanted to calculate their own BMI before finishing the assignment.

—Tina Gay,
K. E. Taylor Elementary School, Lawrenceville, Georgia

OTHER IDEAS

- Choose athletes from local teams instead of professionals.
- For people under twenty years old, the BMI uses age, weight, and height numbers, since young people's bodies are still developing. The Web site http://apps.nccd.cdc.gov/dnpabmi/ has a link that describes how to accurately measure height and weight. Students can determine their BMI using the site calculator, find the range of normal for a person who is his or her age and height by increasing and/or decreasing the weight without changing the height or age, and recalculate the theoretical BMI. Students can graph the weight versus the BMI and discuss the shape of the graph.
- This exercise could be incorporated into a fitness project over time. Students could keep track of their BMI and create a line graph to analyze changes over time.
- Have students create a survey to use with (1) family members or (2) a subgroup at their school (students in their homeroom classes, teachers, members of a club, and so on). Ask students to calculate the group members' BMIs.